



BODNAR

ILLUMINATED PLASTIC CONTROL PANELS

FOR THE AVIATION, ELECTRONICS AND COMPUTER INDUSTRIES QUALIFIED TO MIL-P-7788A



The exclusive
BODNAR "SPECIAL COATING"
provides maximum legibility
and uniform illumination

- parallax-free, flush markings
- produced in all designs and contours
- superior abrasion resistance
- low voltage blackout eliminated
- no dirt traps or feathering
- a volume process that lowers cost
- fast delivery

THE TRANSMISSION OF LIGHT

Selectively Controlled With
Bodnar Plastic Panels, Dials
and Knob Assemblies

TYPICAL SPECIFICATION

LEGIBILITY AND BALANCED LIGHTING

In plastic lighting plates, as in all illumination, the intensity of light falls off rapidly as the distance from the light source increases. The markings on a panel, dial, and knob assembly, however, must be uniformly lighted. Markings that are close or distant from the light sources, panels that are curved or irregularly shaped, unconventional designs — all of these conditions, no matter how extreme, have to be engineered to yield comfortable, evenly distributed light with no hot or dark spots.

Specifications for the uniform illumination of control panels, dials and knob assemblies are therefore tight and demanding. For example, MIL-P-7788A requires that the light intensity of the brightest marking on the panel be no more than 5 times that of the dimmest marking. Over a lamp voltage range of 7 to 28 volts, the dimmest markings must be a minimum of 1.0 foot-lamberts and the brightest markings a maximum of 5.0 foot-lamberts (both without a red filter).

Bodnar illuminated panels, with their component dials and knobs, operate under such specifications everywhere in the world. Completely readable during all conditions of light and darkness, Bodnar panels, dials and knob assemblies are designed to illuminate only necessary information. The least number of costly and space-consuming lamps are utilized.

An excellent balance between eye comfort and clear visibility is achieved. This balance is most important in aircraft, where a minimum optical strain is essential, especially during those times when the pilot alternates his vision between the instruments and the outside.

When the markings near the light sources are made more opaque, and those that are further away are made more translucent, the same quantity of light is emitted at all points. *With this Bodnar engineered method of light distribution, the maximum uniformity of illumination is attained with the minimum of lamps.*

A FEW OF THE MANY USERS OF BODNAR PRODUCTS

RCA
ITT FEDERAL
GENERAL ELECTRIC
MOTOROLA
COLLINS RADIO
U. S. NAVAL AVIONICS FACILITY
HAZELTINE ELECTRONICS
PIASECKI AIRCRAFT

LEAR
RAILWAY ELECTRONICS
STROMBERG-CARLSON
STEWART WARNER
MAGNAVOX
LORAL ELECTRONICS
PACKARD BELL

SPERRY RAND
U. S. GAUGE
ECLIPSE PIONEER
BENDIX RADIO
CONTROL INSTRUMENT
W. L. MAXSON
GRIGESBY

**PRECISION
ENGINEERING
AND
QUALITY CONTROL**

**BODNAR SERVICE
IN RESEARCH
AND ENGINEERING**

The illuminated control, panels, dials and knob assemblies by Bodnar are the highest quality obtainable. During manufacture critical tolerances are enforced by a staff of technically trained quality control inspectors, who are stationed throughout the production line. Their vigilant surveillance guarantees that each part that is shipped exceeds even the exacting requirements of MIL-P-7788A.

Features of Bodnar illuminated panels, dials and knob assemblies include:

FLUSH WHITE MARKINGS — eliminates parallax and assures readability at any angle.

MAXIMUM CONTRAST — between the white markings and the special non-reflective opaque black coatings on the plate.

LOW GLOSS BACKGROUND — that is easy on the eyes.

UNIFORM ILLUMINATION — from controlled translucency of the white undercoating and carefully arranged light sources that provide an even distribution of soft, red light.

VISUAL COMFORT AND EFFICIENCY — prevents eye fatigue and the retention of after images.

DIVERSE SHAPES — available flat, curved and irregular.

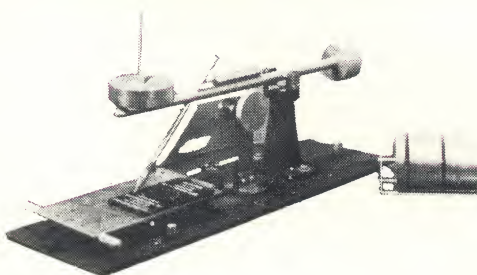
HIGH IMPACT RESISTANCE — does not shatter, craze or permanently deform even under severe vibration or shock.

TEMPERATURE AND ALTITUDE PROOF — maintains top efficiency at high and low temperatures ranging from -85°F. to $+185^{\circ}\text{F.}$

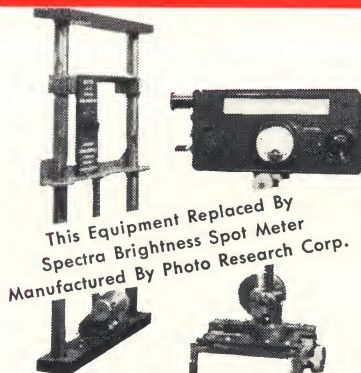
EXCLUSIVE PROTECTIVE FINISH — safeguards against abrasion, water, humidity, salt spray, gasoline, hydraulic fluid, carbon tetrachloride and many other solvents.

Submit your problems in the design of illuminated instrument panels, dials, and knob assemblies to the research and engineering groups at Bodnar. As leaders in this specialized field, we have a successful history of developing new panels at minimum cost. Unique shapes, maximum visibility, resistance to severe mechanical, thermal, chemical and environmental stresses — whatever your problem — we welcome the opportunity to be of service.

...A SAMPLING OF OUR TEST FACILITIES



BELL LABORATORIES SCRATCH TESTER — to evaluate surface endurance, that is, adhesion, scratch and mar resistances, etc.



LUCKIESH-TAYLOR BRIGHTNESS METER — to evaluate contrast and illumination of panels under conditions that vary from bright daylight to complete darkness.



HUNTER PHOTOMETRIC UNIT — to evaluate the specular gloss of surfaces in order to maintain desirably low levels of reflectance.

INTEGRAL LIGHTING OF METERS AND INSTRUMENTS

We are currently in production on integrally lighted meters for aircraft instrumentation in accordance with specification MIL-L-25467A (ASG).

We welcome an opportunity to discuss your meter lighting problems.

SOME OF THE SPECIFICATIONS TO WHICH WE WORK

| | | |
|-------------|-------------|--------------|
| MIL-P-7788 | MIL-C-6781 | MIL-K-24059 |
| MIL-P-7788A | MIL-E-5272 | MIL-L-25467A |
| MIL-C-18012 | MIL-E-16400 | Etc. |

BODNAR PRODUCTS ARE ON THE FOLLOWING EQUIPMENT

| | | | |
|--------|---------|--------|--------|
| AIC 10 | APX 17 | ARC 65 | FPS 3 |
| AIC 14 | ARC 22 | ARN 14 | SPS 29 |
| APA 69 | ARC 27 | ARN 21 | SLA 18 |
| APR 9 | ARC 33 | ARN 31 | SLA 85 |
| APS 54 | ARC 34 | ARN 52 | UPA 38 |
| APX 6 | ARC 34A | ARR 40 | |
| APX 7 | ARC 44 | ASA 13 | |

LABORATORY AND TEST FACILITIES

The laboratory and test facilities at Bodnar Products Corp. are certified by The National Bureau of Standards, Washington, D. C. for illumination tests of plastic lighting plates. Laboratory facilities also include equipment for humidity and temperature environmental testing.

**FOR GOVERNMENT MIL-P-7788A, AND INDUSTRIAL ILLUMINATED PLASTIC PANELS,
DIALS AND KNOB ASSEMBLIES**

Consult

BODNAR PRODUCTS CORP.

Successors to Plastics Division, BODNAR INDUSTRIES, Inc.

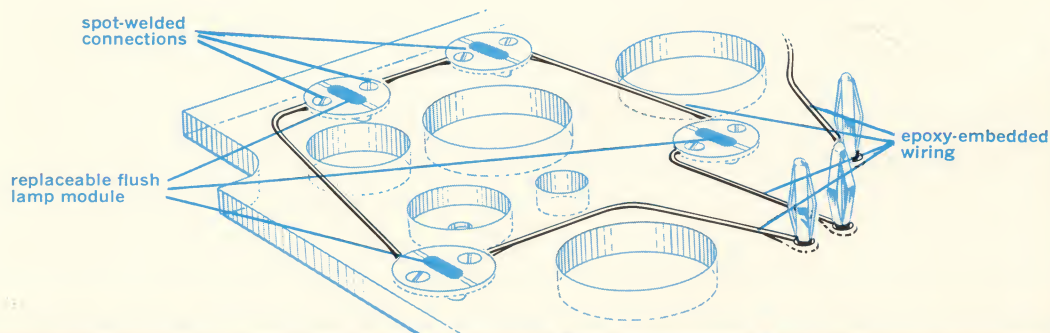
238 Huguenot Street • New Rochelle, New York

NEw Rochelle 6-4664

control panels

BODNAR

- *new flush-type*
 - *replaceable lamps*
 - *epoxy-embedded wiring*
 - *spot-welded*
- absolute reliability*



COMPLETELY WIRED
REPLACEABLE LAMPS

FOR CRITICAL
MILITARY REQUIREMENTS
EXCEEDS MIL-P-7788A.

FOR AIRCRAFT • SHIPBOARD
GROUND SUPPORT EQUIPMENT

uniform illumination • maximum
contrast • readability at any angle
• visual comfort and efficiency
• high impact resistance • wiring
meets MIL-E-5400
environmental specs.

Innovators and leaders in this
specialized field, BODNAR is noted
for developing new panels at
minimum cost . . . unique shapes,
with maximum visibility, resistance
to severe mechanical, thermal,
chemical and environmental stresses.



Bodnar's research and engineering
groups will work with you on any
illuminated instrument panel,
dial or knob assembly problem.
Don't hesitate — submit your
problem for solution.

IMPORTANT: Bodnar Products Corp.
laboratory and test facilities are
certified by the National Bureau of
Standards, Washington, D.C. for
illumination tests of plastic
lighting plates. Laboratory facilities
also include equipment for
humidity and temperature
environmental testing.

BODNAR
PRODUCTS CORP.

238 Huguenot St. • New Rochelle 1, N.Y.
Phone: NEW Rochelle 6-4664